

SUBCHAPTER G - ENGINEERING AND TRAFFIC OPERATIONS

PART 650 - BRIDGES, STRUCTURES, AND HYDRAULICS

Subpart C - National Bridge Inspection Standards

Sec.

650.301 Application of standards.

650.303 Inspection procedures.

650.305 Frequency of inspections.

650.307 Qualifications of personnel.

650.309 Inspection report.

650.311 Inventory.

Authority: 23 U.S.C. 109 (a) and (h), 144, 151, 315, and 319; 23 CFR 1.32; 49 CFR 1.48(b), E.O. 11988 (3 CFR, 1977 Comp. p. 117); Department of Transportation Order 5650.2 dated April 23, 1979 (44 FR 24678); section 161 of Public Law 97-424, 96 Stat. 2097, 3135; section 4(b) of Public Law 97-134, 95 Stat. 1699; and 33 U.S.C. 401, 491 et seq., 511 et seq.; and section 1057 of Public Law 102-240, 105 Stat. 2002.

[59 FR 37935, July 26, 1994]

Source: 36 FR 7851, Apr. 27, 1971, unless otherwise noted. Redesignated at 39 FR 10430, Mar. 20, 1974.

Sec. 650.301 Application of standards.

The National Bridge Inspection Standards in this part apply to all structures defined as bridges located on all public roads. In accordance with the AASHTO (American Association of State Highway and Transportation Officials) Transportation Glossary, "bridge" is defined as a structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between

undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

[44 FR 25435, May 1, 1979 as amended at 51 FR 16834, May 7, 1986]

Sec. 650.303 Inspection procedures.

(a) Each highway department shall include a bridge inspection organization capable of performing inspections, preparing reports, and determining ratings in accordance with the provisions of the AASHTO Manual [The "AASHTO Manual" referred to in this part is the "Manual for Maintenance Inspection of Bridges 1983" together with subsequent interim changes or the most recent version of the AASHTO Manual published by the American Association of State Highway and Transportation Officials. A copy of the Manual may be examined during normal business hours at the office of each Division Administrator of the Federal Highway Administration, at the office of each Regional Federal Highway Administrator, and at the Washington Headquarters of the Federal Highway Administration. The addresses of those document inspection facilities are set forth in Appendix D to Part 7 of the regulations of the Office of the Secretary (49 CFR Part 7). In addition, a copy of the Manual may be secured upon payment in advance by writing to the American Association of State Highway and Transportation Officials, 444 N. Capitol Street, NW., Suite 225, Washington, D.C. 20001.] and the Standards contained herein.

(b) Bridge inspectors shall meet the minimum qualifications stated in Sec. 650.307.

(c) Each structure required to be inspected under the Standards shall be rated as to its safe load carrying capacity in accordance with section 4 of the AASHTO Manual. If it is determined under this rating procedure that the maximum legal load under State law exceeds the load permitted under the Operating Rating, the bridge must be posted in conformity with the AASHTO Manual or in accordance with State law.

(d) Inspection records and bridge inventories shall be prepared and maintained in accordance with the Standards.

(e) The individual in charge of the organizational unit that has been delegated the responsibilities for bridge inspection, reporting and inventory shall determine and designate on the individual inspection and inventory records and maintain a master list of the following:

(1) Those bridges which contain fracture critical members, the location and description of such members on the bridge and the inspection frequency and procedures for inspection of such members. (Fracture critical members are tension members of a bridge whose failure will probably cause a portion of or the entire bridge to collapse.)

(2) Those bridges with underwater members which cannot be visually evaluated during periods of low flow or examined by feel for condition, integrity and safe load capacity due to excessive water depth or turbidity. These members shall be described, the inspection frequency stated, not to exceed five years, and the inspection procedure specified.

(3) Those bridges which contain unique or special features requiring additional attention during inspection to ensure the safety of such bridges and the inspection frequency and procedure for inspection of each such feature.

(4) The date of last inspection of the features designated in paragraphs (e)(1) through (e)(3) of this section and a description of the findings and follow-up actions, if necessary, resulting from the most recent inspection of fracture critical details, underwater members or special features of each so designated bridge.

[36 FR 7851, Apr. 27, 1971. Redesignated at 39 FR 10430, Mar. 20, 1974, and amended at 44 FR 25435, May 1, 1979; 53 FR 32616, Aug. 26, 1988]

Sec. 650.305 Frequency of inspections.

(a) Each bridge is to be inspected at regular intervals not to exceed 2 years in accordance with section 2.3 of the AASHTO Manual.

(b) Certain types or groups of bridges will require inspection at less than 2-year intervals. The depth and frequency to which bridges are to be inspected will depend on such factors as age, traffic characteristics, state of maintenance, and known deficiencies. The evaluation of these factors will be the responsibility of the individual in charge of the inspection program.

(c) The maximum inspection interval may be increased for certain types or groups of bridges where past inspection reports and favorable experience and analysis justifies the increased interval of inspection. If a State proposes to inspect some bridges at greater than the specified two-year interval, the State shall submit a detailed proposal and supporting data to the Federal Highway Administrator for approval. The maximum time period between inspections shall not exceed four years.

[36 FR 7851, Apr. 27, 1971. Redesignated at 39 FR 10430, Mar. 20, 1974, and amended at 39 FR 29590, Aug. 16, 1974; 53 FR 32616, Aug. 26, 1988; 57 FR 53281, Nov. 9, 1992]

Sec. 650.307 Qualifications of personnel.

(a) The individual in charge of the organizational unit that has been delegated the responsibilities for bridge inspection, reporting, and inventory shall possess the following minimum qualifications:

(1) Be a registered professional engineer; or

(2) Be qualified for registration as a professional engineer under the laws of the State; or

(3) Have a minimum of 10 years experience in bridge inspection assignments in a responsible capacity and have completed a comprehensive training course based on the "Bridge Inspector's Training Manual," [The "Bridge Inspector's Training Manual" may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.] which has been developed by a joint Federal-State task force and subsequent additions to the manual. [The following publications are supplements to the "Bridge Inspector's Training Manual"; "Bridge Inspector's Manual for Movable Bridges." 1977, GPO Stock No. 050-002-00103-5; "Culvert Inspector's Training Manual," July 1986, GPO Stock No. 050-001- 0030-7; and "Inspection of Fracture Critical Bridge Members," 1986, GPO Stock No. 050-001-00302-3.]

(b) An individual in charge of a bridge inspection team shall possess the following minimum qualifications:

(1) Have the qualifications specified in paragraph (a) of this section; or

(2) Have a minimum of 5 years experience in bridge inspection assignments in a responsible capacity and have completed a comprehensive training course which has been developed by a joint Federal-State task force.

(3) Current certification as a Level III or IV Bridge Safety Inspector under the National Society of

Professional Engineer's program for National Certification in Engineering Technologies (NICET) [For information on NICET program certification contact: National Institute for Certification in Engineering Technologies, 1420 King Street, Alexandria, Virginia 22314, Attention: John D. Antrim, P.E., Phone (703) 684-2835.] is an alternate acceptable means for establishing that a bridge inspection team leader is qualified.

[36 FR 7851, Apr. 27, 1971. Redesignated at 39 FR 10430, Mar. 20, 1974, and amended at 44 FR 25435, May 1, 1979; 53 FR 32616, Aug. 26, 1988]

Sec. 650.309 Inspection report.

The findings and results of bridge inspections shall be recorded on standard forms. The data required to complete the forms and the functions which must be performed to compile the data are contained in section 3 of the AASHTO Manual.

[39 FR 29590, Aug. 16, 1974]

Sec. 650.311 Inventory.

(a) Each State shall prepare and maintain an inventory of all bridge structures subject to the Standards. Under these Standards, certain structure inventory and appraisal data must

be collected and retained within the various departments of the State organization for collection by the Federal Highway Administration as needed. A tabulation of this data is contained in the structure inventory and appraisal sheet distributed by the Federal Highway Administration as part of the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges (Coding Guide) in January of 1979. Reporting procedures have been developed by the Federal Highway Administration.

(b) Newly completed structures, modification of existing structures which would alter previously recorded data on the inventory forms or placement of load restriction signs on the approaches to or at the structure itself shall be entered in the State's inspection reports and the computer inventory file as promptly as practical, but no later than 90 days after the change in the status of the structure for bridges directly under the State's jurisdiction and no later than 180 days after the change in status of the structure for all other bridges on public roads within the State.

[44 FR 25435, May 1, 1979, as amended at 53 FR 32617, Aug. 26, 1988]

SUBCHAPTER G - ENGINEERING AND TRAFFIC OPERATIONS

PART 650 - BRIDGES, STRUCTURES, AND HYDRAULICS

Subpart D - Highway Bridge Replacement and Rehabilitation Program

Sec.

650.401 Purpose.

650.403 Definition of terms.

650.405 Eligible projects.

650.407 Application for bridge replacement or rehabilitation.

650.409 Evaluation of bridge inventory.

650.411 Procedures for bridge replacement and rehabilitation projects.

650.413 Funding.

650.415 Reports.

Authority: 23 U.S.C. 109 (a) and (h), 144, 151, 315, and 319; 23 CFR 1.32; 49 CFR 1.48(b), E.O. 11988 (3 CFR, 1977 Comp. p. 117); Department of Transportation Order 5650.2 dated April 23, 1979 (44 FR 24678); section 161 of Public Law 97-424, 96 Stat. 2097, 3135; section 4(b) of Public Law 97-134, 95 Stat. 1699; and 33 U.S.C. 401, 491 et seq., 511 et seq.; and section 1057 of Public Law 102-240, 105 Stat. 2002.

[59 FR 37935, July 26, 1994]

Source: 44 FR 15665, Mar. 15, 1979, unless otherwise noted.

Sec. 650.401 Purpose.

The purpose of this regulation is to prescribe policies and outline procedures for administering the Highway Bridge Replacement and Rehabilitation Program in accordance with 23 U.S.C. 144.

Sec. 650.403 Definition of terms.

As used in this regulation:

(a) Bridge. A structure, including supports, erected over a depression or an obstruction, such as water, a highway, or a railway, having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of the openings for multiple boxes; it may include multiple pipes where the clear distance between openings is less than half of the smaller contiguous opening.

(b) Sufficiency rating.

The numerical rating of a bridge based on its structural adequacy and safety, essentiality for public use, and its serviceability and functional obsolescence.

(C) Rehabilitation. The major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects.

Sec. 650.405 Eligible projects.

(a) General.

Deficient highway bridges on all public roads may be eligible for replacement or rehabilitation.

(b) Types of projects which are eligible. The following types of work are eligible for participation in the Highway Bridge Replacement and Rehabilitation Program (HBRRP), hereinafter known as the bridge program.

(1) Replacement. Total replacement of a structurally deficient or functionally obsolete bridge with a new facility constructed in the same general traffic corridor. A nominal amount of approach work, sufficient to connect the new facility to the existing roadway or to return the gradeline to an attainable touchdown point in accordance with good design practice is also eligible. The replacement structure must meet the current geometric, construction and structural standards required for the types and volume of projected traffic on the facility over its design life.

(2) Rehabilitation. The project requirements necessary to perform the major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects are eligible except as noted under ineligible work. Bridges to be rehabilitated both on or off the F-A System shall, as a minimum, conform with the provisions of 23 CFR Part 625, Design Standards for Federal-aid Highways, for the class of highway on which the bridge is a part.

(C) Ineligible work. Except as otherwise prescribed by the Administrator, the costs of long approach fills, causeways, connecting roadways, interchanges, ramps, and other extensive earth structures, when constructed beyond the attainable touchdown point, are not eligible under the bridge program.

Sec. 650.407 Application for bridge replacement or rehabilitation.

(a) Agencies participate in the bridge program by conducting bridge inspections and submitting Structure Inventory and appraisal (SI&A) sheet inspection data. Federal and local governments supply SI&A sheet data to the State agency for review and processing. The State is responsible for submitting the six computer card format or tapes containing all public road SI&A sheet bridge information through the Division Administrator of the Federal Highway Administration (FHWA) for processing. These requirements are prescribed in 23 CFR 650.309 and 650.311, the National Bridge Inspection Standards.

(b) Inventory data may be submitted as available and shall be submitted at such additional times as the FHWA may request.

(c) Inventory data on bridges that have been strengthened or repaired to eliminate deficiencies, or those that have been replaced or rehabilitated using bridge replacement and/or other funds, must be revised in the inventory through data submission.

(d) The Secretary may, at the request of a State, inventory bridges, on and off the Federal-aid system, for historic significance.

[44 FR 15665, Mar. 15, 1979, as amended at 44 FR 72112, Dec. 13, 1979]

Sec. 650.409 Evaluation of bridge inventory.

(a) Sufficiency rating of bridges. Upon receipt and evaluation of the bridge inventory, a sufficiency rating will be assigned to each bridge by the Secretary in accordance with the approved AASHTO [American Association of State Highway and Transportation Officials, Suite 225, 444 North Capitol Street, NW, Washington, D.C. 20001.] sufficiency rating formula. The sufficiency rating will be used as a basis for establishing eligibility and priority for replacement or rehabilitation of bridges; in general the lower the rating, the higher the priority.

(b) Selection of bridges for inclusion in State program. After evaluation of the inventory and assignment of sufficiency ratings, the Secretary will provide the State with a selection list of bridges within the State that are eligible for the bridge program. From that list or from previously furnished selection lists, the State may select bridge projects.

Sec. 650.411 Procedures for bridge replacement and rehabilitation projects.

(a) Consideration shall be given to projects which will remove from service highway bridges most in danger of failure.

(b) Submission and approval of projects.

(1) Bridge replacement or rehabilitation projects shall be submitted by the State to the Secretary in accordance with 23 CFR Part 630 Subpart A Federal-Aid Programs, Approval and Authorization.

(2) Funds apportioned to a State shall be made available throughout each State on a fair and equitable basis.

(1) Each approved project will be designed, constructed, and inspected for acceptance in the same manner as other projects on the system on which the project is located. It shall be the responsibility of the State agency to properly maintain, or cause to be properly maintained, any project constructed under this bridge program. The State highway agency shall enter into a formal agreement for maintenance with appropriate local project is located within and is under the legal authority of such a local government.

(2) Whenever a deficient bridge is replaced or its deficiency alleviated by a new bridge under the bridge program, the deficient bridge shall either be dismantled or demolished or its use limited to the type and volume of traffic the structure can safely service over its remaining life. For example, if the only deficiency of the existing structure is inadequate roadway width and the combination of the new and existing structure can be made to meet current standards for the volume of traffic the facility will carry over its design life, the existing bridge may remain in place and be incorporated into the system.

[44 FR 15665, Mar. 15, 1979, as amended at 44 FR 72112, Dec. 13, 1979]

Sec. 650.413 Funding.

(a) Funds authorized for carrying out the Highway Bridge Replacement and Rehabilitation Program are available for obligation at the beginning of the fiscal year for which authorized and remain available for expenditure for the same period as funds apportioned for projects on the Federal-aid primary system.

(b) The Federal share payable on account of any project carried out under 23 U.S.C. 144 shall be 80 percent of the eligible cost.

(c) Not less than 15 percent nor more than 35 percent of the apportioned funds shall be expended for projects located on public roads, other than those on a with State and local officials may, with respect to a State, reduce the requirement for expenditure for bridges not on a Federal-aid system when he determines that such State has inadequate needs to justify such expenditure.

Sec. 650.415 Reports.

The Secretary must report annually to the Congress on projects approved and current inventories together with recommendations for further improvements.

SUBCHAPTER G - ENGINEERING AND TRAFFIC OPERATIONS

PART 650 - BRIDGES, STRUCTURES, AND HYDRAULICS

Subpart G - Discretionary Bridge Candidate Rating Factor

Sec.

650.701 Purpose.

650.703 Eligible projects.

650.705 Application for discretionary bridge funds.

650.707 Rating factor.

650.709 Special considerations.

Authority: 23 U.S.C. 109 (a) and (h), 144, 151, 315, and 319; 23 CFR 1.32; 49 CFR 1.48(b), E.O. 11988 (3 CFR, 1977 Comp. p. 117); Department of Transportation Order 5650.2 dated April 23, 1979 (44 FR 24678); section 161 of Public Law 97-424, 96 Stat. 2097, 3135; section 4(b) of Public Law 97-134, 95 Stat. 1699; and 33 U.S.C. 401, 491 et seq., 511 et seq.; and section 1057 of Public Law 102-240, 105 Stat. 2002.

[59 FR 37935, July 26, 1994]

Source: 48 FR 52296, Nov. 17, 1983, unless otherwise noted.

Sec. 650.701 Purpose.

The purpose of this regulation is to describe a rating factor used as part of a selection process of allocation of discretionary bridge funds made available to the Secretary of Transportation under 23 U.S.C. 144.

Sec. 650.703 Eligible projects.

(a) Deficient highway bridges on Federal-aid highway system roads may be eligible for allocation of discretionary bridge funds to the same extent as they are for bridge funds apportioned under 23 U.S.C. 144, provided that the total project cost for a discretionary

bridge candidate is at least \$10 million or twice the amount of 23 U.S.C. 144 funds apportioned to the State during the fiscal year for which funding for the candidate bridge is requested.

(b) After the effective date of this regulation for the discretionary bridge candidate rating factor, only candidate bridges not previously selected with a computed rating factor of 100 or less will be eligible for consideration.

Sec. 650.705 Application for discretionary bridge funds.

Each year through its field offices, the FHWA will issue an annual call for discretionary bridge candidate submittals including updates of previously submitted but not selected projects. Each State is responsible for submitting such data as required for candidate bridges. Data requested will include structure number, funds needed by fiscal year, total project cost, current average daily truck traffic and a narrative describing the existing bridge, the proposed new or rehabilitated bridge and other relevant factors which the State believes may warrant special consideration.

Sec. 650.707 Rating factor.

(a) The following formula is to be used in the selection process for ranking discretionary bridge candidates:

$$\text{Rating Factor (RF)} = \frac{\text{SR}}{\text{D}} \times \frac{\text{TPC}}{\text{ADT}} \times 1 + \frac{\text{Unobligated HBRRP Balance}}{\text{Total HBRRP Funds Received}}$$

The lower the rating factor, the higher the priority for selection and funding.

(b) The terms in the rating factor are defined as follows:

SR is Sufficiency Rating computed as illustrated in Appendix A of the Recording and Coding Guide for the Structure inventory and Appraisal of the Nation's Bridges, USDOT/FHWA (latest edition); (If SR is less than 1.0, use SR=1.0);

ADT is Average Daily Traffic in thousands taking the most current value from the national bridge inventory data;

ADTT is Average Daily Truck Traffic in thousands (Pick up trucks and light delivery trucks not included);

For load posted bridges, the ADTT furnished should be that which would use the bridge if traffic were not restricted.

The ADTT should be the annual average volume, not peak or seasonal.

D is Defense Highway System Status

D=1 if not on defense highway

D=1.5 if bridge carries a designated defense highway

The last term of the rating factor expression includes the State's unobligated balance of funds received under 23 U.S.C. 144 as of June 30 preceding the date of calculation, and the total funds received under 23 U.S.C. 144 for the last four fiscal years ending with the most recent fiscal year of the FHWA's annual call for discretionary bridge candidate submittals; (if unobligated HBRRP balance is less than \$10 million, use zero balance);

TPC is Total Project Cost in millions of dollars;

HBRRP is Highway Bridge Replacement and Rehabilitation Program;

ADT' is ADT plus ADTT.

(c) In order to balance the relative importance of candidate bridges with very low (less than one) sufficiency ratings and very low ADT's against candidate bridges with high ADT's, the minimum sufficiency rating used will be 1.0. If the computed sufficiency rating for a candidate bridge is less than 1.0, use 1.0 in the rating factor formula.

(d) If the unobligated balance of HBRRP funds for the State is less than \$10 million, the HBRRP modifier is 1.0. This will limit the effect of the modifier on those States with small apportionments or those who may be accumulating funds to finance a major bridge.

[48 FR 52296, Nov. 17, 1983; 48 FR 53407, Nov. 28, 1983]

Sec. 650.709 Special considerations.

(a) The selection process for new discretionary bridge projects will be based upon the rating factor priority ranking. However, although not specifically included in the rating factor formula, special consideration will be given to bridges that are closed to all traffic or that have a load restriction of less than 10 tons. Consideration will also be given to bridges with other unique situations, and to bridge candidates in States which have not previously been allocated discretionary bridge funds.

(b) The need to administer the program from a balanced national perspective requires that the special cases set forth in paragraph (a) of this section and other unique situations be considered in the discretionary bridge candidate evaluation process.

(c) Priority consideration will be given to the continuation and completion of bridge projects previously begun with discretionary bridge funds.